

Renal Disease In Diabetes

Originally published November 2001; Revised January 2005

Washington State Clinical Advisory Council to the Washington State Department of Health

Adapted for use by the Advisory Council with permission from the

Washington State Department of Health Diabetes Kidney Screening & Treatment Task Force

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The individual clinician is in the best position to determine which tests are most appropriate for a particular patient.

Screening and Monitoring	Treatment and Monitoring	Risk of ESRD
Urinalysis for protein¹ Less than 1+ protein: Test for microalbuminuria² with either: 1. Spot AM urine for mg microalbumin/mg creatinine (ratio) ¹ ; or 2. Timed urine collection for mcg albumin/min; or 3. 24 hour urine collection for total mg albumin/24 hours. NOTE: See the following two boxes for interpretation of results for these tests.	Protective Recommendations for all patients 1. Strict glucose control (HbA1C less than or equal to 7.0% using an NGSP ³ -certified method); 2. Strict blood pressure control (less than or equal to 130/80); 3. Strict lipid control (cholesterol less than 200 mg/dL, LDL less than 100 mg/dL, HDL greater than 45 mg/dL, triglycerides less than 150 mg/dL).	
1. Spot AM urine microalbumin/creatinine ratio less than 0.03 mg/mg on 2 of 3 tests (to rule out false positives ¹); or 2. Urine albumin less than 20 mcg/min on timed urine collection; or 3. Total urine albumin less than 30 mg on 24-hour urine collection.	No microalbuminuria 1. Repeat test for microalbuminuria ² annually ; 2. Continue Protective Recommendations as above; 3. If patient already on ACE inhibitor or ARBs ⁴ , check serum creatinine and K+ (see #4 below).	Low
1. Spot AM urine microalbumin/creatinine ratio 0.03 to 0.30 mg/mg on 2 of 3 tests (to rule out false positives ¹); or 2. Urine albumin 20 to 200 mcg/min on timed urine collection; or 3. Total urine albumin 30 to 300 mg on 24 hour urine collection.	Microalbuminuria (incipient nephropathy) 1. If serum creatinine less than 2 mg/dL and K+ less than 5.5 mEq/L, treat with ACE inhibitor or ARBs ² ; 2. Continue Protective Recommendations as above; 3. Check serum creatinine and K+ and UA for gross proteinuria annually; 4. If creatinine greater than 2 mg/dL or K+ greater than 5.5 mEq/L; consider consult with nephrologist.	Mod: incipient nephropathy
Greater than or equal to 1+ protein, or Spot AM urine albumin/creatinine ratio greater than 0.30 mg/mg on 2 of 3 tests (to rule out false positives¹). Check total gm urine <u>protein</u> on 24-hour urine collection, or spot AM urine <u>protein</u> /creatinine ratio. 1. Total urine <u>protein</u> greater than 500 mg but less than 1 gram on 24-hour urine collection; or 2. Spot AM urine <u>protein</u> /creatinine ratio greater 0.5 but less than 1.0.	Macroalbuminuria/gross proteinuria (overt nephropathy) 1. Continue treatment as for microalbuminuria above; 2. Consider consult with nephrologist.	High: overt nephropathy
1. Total urine <u>protein</u> greater than 1 gram in 24 hours; or 2. Spot AM urine <u>protein</u> /creatinine ratio greater than 1.0.	Marked proteinuria (severe renal disease) Refer to nephrologist for education and preparation for dialysis	Extremely high: pending ESRD

¹ UA protein or spot AM urine microalbumin/creatinine ratio may be positive or elevated in the setting of poor glucose control, UTI, heavy exercise, fever or sepsis ñ treat as appropriate before re-testing.

² Most labs use a very sensitive method to measure albumin in the microalbumin range. Check with your lab on test choice and availability, specimen collection, preference, and interpretation.

³ NGSP: National Glycohemoglobin Standardization Program

⁴ ARBs: Angiotensin Receptor Blockers